Impact of Deforestation on Indian Climate

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ABSTRACT: ***There are two overlapping cycles, one of which is deforestation and the other is climate change, and both are interrelated. The degree of deforestation is high and extremely undesirable. There has also been a decrease in very dense forest (VDF) to the tune of 201 sq km and open forest to the level of 690 sq. km. Forests are threatened by climate change, as are other ecosystems. The environment is also influenced by forests, which absorb CO_2 from the atmosphere and store carbon in wood, leaves, litter, roots, and soil. When trees are cleared or burnt, the coal is released back into the atmosphere. Forests are deemed to moderate global climate change by serving as sinks. Deforestation is correlated with declines in rainfall, temperature increases and severe weather conditions in India.***

KEYWORDS: Climate, Deforestation, Forest, Land, Weather.

INTRODUCTION

India has a total land area of 329 million hectares, of which approximately 23.4%, or 76.87 million hectares (Mha), is listed as tree-covered forestland. More than 40 percent of the forests in the country are depleted and under-stocked; there is a high potential for REDD+ activities in the country as a result. Forests are threatened by climate change, as are other ecosystems. The environment is also influenced by forests, which absorb CO2 from the atmosphere and store carbon in wood, leaves, litter, roots, and soil[1]. When trees are cleared or burnt, the coal is released back into the atmosphere. Forests are deemed to moderate global climate change by serving as sinks.

Because of their genetic, taxonomic, and functional biodiversity, natural forests are more resilient to climate change and disturbances than plantations. This resilience includes post-fire regeneration, resistance to and recovery from pests and diseases, and adaptation (including those resulting from global climate change) to changes in radiation, temperature, and water availability. While the genetic and taxonomic makeup of forest habitats changes over time, natural forests can continue to absorb and store carbon as long as there is sufficient carbon. Forests, especially in tropical countries, are attracting growing attention for a variety of reasons, such as deforestation and its contribution to global CO_2 emissions, resulting in climate change and the loss of biodiversity and ecosystem services[2]. The need for periodic assessment and monitoring of the condition of forests and biodiversity, the flow of ecosystem resources, deforestation rates, factors driving deforestation and changes in forest carbon stocks are also increasingly being realized in the global context.

India, along with Brazil, Indonesia and South Africa, is one of the leading tropical countries periodically monitoring and reporting the state of forests as well as areas under forests, using the latest remote sensing techniques. The Forest Survey of India (FSI) is the appointed agency for the routine monitoring and reporting of changes in forest areas[3]. The State of Indian Forest Report has already been published by FSI in 2015, which shows some of the troubling elements in the field of forest loss that will appear in the discussion in the later part of this post. Large-scale forest destruction began with the British in recent Indian forest history, who decided to use wood and natural resources for the growth and continuation of the empire. Gadgil and Guha have pieced together an idea of the commercial assault on India's forests by the British. Quoting from a variety of sources, they show how the need for sturdy timber from India from teak (Tectona grandis) forests was gradually met by the British navy. To build the massive rail network that criss-crosses India today, vast tracts of forest have been chopped up. The primary objective was to transport low-cost raw materials rapidly, cheaply and effectively to ports from the hinterlands of the world for export to the factories of Britain and to ensure the rapid movement of security forces to retain control of the empire.

For example, from the Yamuna Valley forests in the Himalayas between 1869 and 1885, over 6,500,000 deodar Cedrus deodara sleepers were harvested, which in turn was needed because the supply of teak and sal from peninsular India was getting exhausted[4]. The expansion of both the railways and the British Empire was encouraged by wood for railway sleepers and as fuel for running the locomotives. Agricultural growth, mostly state-sponsored, was the other major cause of deforestation immediately after independence. For example, much of the rich moist deciduous forests of the humid Terai region of northern Uttar Pradesh were cleared to provide immigrants from the newly formed Pakistan with land. Once covering the Indo-Gangetic plains, much of the forest was also eventually turned into fields or grazing lands (Subramanium and Sasidharan, 1993). According to the Forest Survey of India, it was between 1951 and 1980. Over 26.20 lakh hectares (26,200 sq.kms) of forest have been converted in India for agricultural purposes.

Human activities such as fuel consumption and land-use change are the key causes of a rise in the concentration of atmospheric carbon dioxide, widely accepted as a driver of climate change and global warming[5]. The Stern Review highlighted that forest restoration, afforestation, reforestation and sustainable forest management can deliver up to 25% of the emission reductions required to tackle climate change effectively, and that reducing deforestation has the potential to deliver substantial emission reductions reasonably rapidly in a highly cost-effective way (Nicholas Stern 2006). Reducing deforestation and forest depletion (REDD+) emissions is a strategy to provide countries that minimize carbon emissions induced by the loss and degradation of their forests with financial incentives. In concept, REDD resembles other Payment for Environmental Services (PES) programs, however, REDD emphasizes a reduction in deforestation and degradation rates from expected levels, also known as avoided deforestation and degradation[6].

DEFINITION OF FOREST IN INDIA

In terms of forms, species composition, products and services it offers, etc., the concept of forest is as varied as its diversity. Forest types vary widely, determined by variables including latitude, temperature, patterns of rainfall, composition of the soil and human activity. It also depends on who determines how a forest is defined. A legal term is distinct from an ecological meaning. A recent analysis of the various definitions of forests (Lund 2012) found that there were more than 800 different definitions of forests and forested areas in use around the world, with several countries concurrently adopting many such definitions. The concept of forest has a direct correlation with India's degree of deforestation. Until we are sure about what forests are and how people interpret deforestation, peoplecannot calculate the extent of deforestation[7].

After the above definition/interpretation of the terms "Forest" and "Forest Land" by the Humble Apex Court, the "Forest Land" was established on similar lines by Section 2 (d) of the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2006, and the same is as follows. 'Forest land' means land falling within any area of any type and comprises unclassified forests, unremarked forests, current or assumed forests, protected forests, reserved forests, shrines and national parks. The definitions set out above are legal definitions of forests for the purposes of defining the word 'forest property' as used in the Acts in question[8]. A detailed description of the term "forest" has yet to be established by India. Nevertheless, for the purposes of the CDM Forest pursuant to the "Kyoto Protocol" India has defined a definition according to the threshold limits set by the UNFCCC for various parameters according to which "A forest is a land area of at least 0.05 ha with a minimum tree crown cover of 15% and a tree height of at least 2 m" According to the India State of Forest Report 2011, Forest Area means that it is a minimum tree crown cover of 15% and a tree height of at least 2 m The term “Forest Cover” includes

"all lands with more than 1 Ha. area with tree canopy density of more than 10 % irrespective of ownership and legal status"[9].

DEFINITION OF DEFORESTATION

Deforestation is a very broad word that consists of tree cutting, including repeated forest litter lopping, felling, and removal, browsing, grazing, and trampling of seedlings. To the degree that it no longer supports its natural flora and fauna, it can also be characterized as the removal or harm of vegetation in a forest. A main driving factor in the yearly rise of flood disasters is the rapid pace of deforestation in the tropics. The loss of tree cover refers to deforestation; land that is permanently converted from forest to non-forest uses, such as agricultural pasture, desert, and human settlement. The FAO describes deforestation as "the conversion of forests to other land use or the long-term reduction of tree canopy cover below the minimum threshold of 10 percent." In addition, deforestation is described by the UNFCCC as "the direct human-induced transformation of forested land into non-forested land." Here, in the absence of data on forest conversion to non-forest use, forest canopy density losses of less than 10% are considered to be forest area loss and potentially deforestation during the monitoring period. The concept of forest differs across nations. Forests are generally characterized in many countries as an area with significantly higher canopy closure levels[10].

CONCLUSION & DISCUSSION

More carbons are released into the environment by deforestation, climate changes take place and soil is exposed to runoff, thereby encouraging erosion. The trade in wood products is an apparent source of significant revenue for national and local governments as well as traditional rulers and individuals. These are not without serious health consequences. This also takes the form of export profits, taxes, royalties and personal income for those involved in the exploitation of these forest products, either directly or indirectly. For this paper, secondary data collection sources were used. Among other recommendations, it is recommended that corrupt government officials responsible for forestry laws and policies should be prosecuted along with illegal loggers, that environmental education should be given to the general public on the dire consequences of deforestation on citizens and society as a whole, that a programmer for the acquisition of skills should be organized for rural women residents and uneducated people.

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